

Claims

1. A communication system comprising:

2 a first cell site primary transceiver system for providing  
communication coverage in a first coverage area;

4 a second cell site primary transceiver system for providing  
communication coverage in a second coverage area;

6 a first cell site secondary transceiver system for providing  
communication coverage in said second coverage area; and

8 a second cell site secondary transceiver system for providing  
communication coverage in said first coverage area, wherein  
10 communications in said first and second coverage area are over a  
common carrier frequency.

2. The communication system as recited in claim 1 further  
comprising:

4 a first cell site antenna system coupled to said first cell site primary  
transceiver system for providing communication coverage in said first  
coverage area;

6 a second cell site antenna system coupled to said second  
cell site primary transceiver system for providing communication coverage  
8 in said second coverage area; and

wherein said first cell site secondary transceiver system is coupled  
to said second cell site antenna system for providing communication  
coverage in said second coverage area;

wherein said second cell site secondary transceiver system is  
coupled to said first cell site antenna system for providing communication  
coverage in said first coverage area.

3. The communication system as recited in claim 1 wherein  
said first cell site primary and said second cell site secondary transceiver  
systems are located within a first common area.

4. The communication system as recited in claim 1 wherein  
said second cell site primary and first cell site secondary transceiver  
systems are located within a second common area.

5. The communication system as recited in claim 1 further  
comprising:

a mobile station configured for performing a hard  
handoff between said first cell site primary transceiver system and said  
second cell site secondary transceiver system followed by a soft handoff  
with said second cell site primary transceiver system and said second cell  
site secondary transceiver system while moving from said first cell site to  
said second cell site.

6. The communication system as recited in claim 1 further comprising:

a first cell site base station controller coupled to said first cell site primary and secondary base transceiver systems;

a first cell site mobile station controller coupled to said first cell site base station controller.

7. The communication system as recited in claim 1 further comprising:

a second cell site base station controller coupled to said second cell site primary and secondary base transceiver systems; and

a second cell site mobile station controller coupled to said second cell site base station controller.

8. The communication system as recited in claim 1 further comprising:

a land based network coupled to said first and second cell sites for providing land based communications to said first and second cell sites.

9. A method comprising:

installing a first cell site primary transceiver system for providing communication coverage in a first coverage area;

4 installing a second cell site primary transceiver system for  
providing communication coverage in a second coverage area;

6 coupling a first cell site secondary transceiver system to an antenna  
system of said second cell primary transceiver system for providing  
8 communication coverage in said second coverage area; and

coupling a second cell site secondary transceiver system to  
10 an antenna system of said first cell primary transceiver system for  
providing communication coverage in said first coverage area.

10. The method as recited in claim 9 further comprising:

2 operating a communication system including said first and second  
cell sites over a common carrier frequency assignment.

11. The method as recited in claim 9 further comprising:

2 locating said first cell site primary and said second cell site  
secondary transceiver systems within a first common area.

12. The method as recited in claim 9 further comprising:

2 locating said second cell site primary and said first cell site  
secondary transceiver systems within a second common area.

13. The method as recited in claim 9 further comprising:

- 2                   coupling a first cell site base station controller to said first cell site  
primary and secondary transceiver systems; and
- 4                   coupling a first cell site mobile station controller to said first cell site  
base station controller.

14.    The method as recited in claim 9 further comprising:
- 2                   coupling a second cell site base station controller to said second  
cell site primary and secondary transceiver systems; and
- 4                   coupling a second cell site mobile station controller to said second  
cell site base station controller.

15.    The method as recited in claim 9 further comprising:
- 2                   coupling a land based network to said first and second cell sites for  
providing land based communications to said first and second cell sites.

16.    The method as recited in claim 9 further comprising:
- 2                   performing a hard handoff, for a mobile station, between said  
first cell site primary transceiver system and said second cell site
- 4                   secondary transceiver system; and
- performing a soft handoff, followed after said hard handoff,
- 6                   with said second cell site secondary transceiver system and said second  
cell site primary transceiver system.

17. A processor for use in a communication receiver  
comprising:

a controller system coupled to a receiving system configured  
for:

acquiring PN offset of a primary pilot signal transmitted from a first  
cell site primary transceiver system in a first coverage area of said first cell  
site,

acquiring PN offset of a secondary pilot signal transmitted in a  
second coverage area of a second cell site from a secondary transceiver  
system of said first cell site,

acquiring PN offset of a primary pilot signal transmitted from a  
primary transceiver system of said second cell site in said second  
coverage area; and

acquiring PN offset of a secondary pilot signal transmitted from said  
second cell site secondary transceiver system transmitting in said first  
coverage area, wherein said first and second cells primary and secondary  
pilot signals use different PN offsets, wherein said pilot signals are  
transmitted over a common frequency assignment.

18. The processor as recited in claim 17 wherein said controller  
system coupled to said receiving system further configured for:

performing a hard handoff for said mobile station from said first cell  
site primary transceiver system to said second cell site secondary

transceiver system and performing a soft handoff, following said hard  
6 handoff, for said mobile station with said second cell site secondary  
transceiver system and said second cell site primary transceiver system.

19. A method for providing uninterrupted communication  
2 services to a mobile station comprising:

performing a hard handoff for said mobile station from a first  
4 cell site primary transceiver system to a second cell site secondary  
transceiver system, wherein said first cell site primary transceiver and said  
6 second cell site secondary transceiver independently provide for  
communication coverage in a first coverage area, and wherein said  
8 second cell site secondary transceiver is coupled to an antenna system of  
said first cell primary transceiver system; and

performing a soft handoff, following said hard handoff, for said  
10 mobile station with said second cell site secondary transceiver system and  
said second cell site primary transceiver system, wherein said second cell  
12 primary transceiver system provides for communication coverage in a  
14 second coverage area, thus allowing said mobile station to have  
uninterrupted communication services while moving from said first  
16 communication coverage area to said second communication coverage  
area.

20. The method as recited in claim 19 further comprising:

transmitting, in said first coverage area of said first cell site, a primary pilot signal from said first cell site primary transceiver system;

transmitting, in said second coverage area of said second cell site, a secondary pilot signal from said first cell site secondary transceiver system,

transmitting, in said second coverage area, a primary pilot signal from said second cell site primary transceiver system; and

transmitting, in said first coverage area, a secondary pilot signal from said second cell site secondary transceiver system, wherein said first and second cells primary and secondary pilot signals use different PN offsets.

21. The method as recited in claim 20 wherein said hard handoff from said first cell site primary transceiver system to said second cell site secondary transceiver system includes:

acquiring PN offsets of said first cell site primary pilot signal and said second cell sites secondary pilot signal.

22. The method as recited in claim 20 wherein said soft handoff with said second cell site secondary transceiver system and said second cell site primary transceiver system includes:

acquiring PN offsets of said second cell site secondary pilot signal and said second cell site primary pilot signal.



23. An apparatus for transmitting signals in a communication  
2 system comprising:

4 a primary pilot signal generator for generating a primary pilot  
signal;

6 a traffic data channel modulator for generating modulated  
traffic channel data;

8 a primary combiner for combining said modulated traffic  
channel data with said primary pilot signal to generate a primary combined  
signal;

10 a primary antenna system for transmitting said primary  
combined signal in a first coverage area of a first cell site;

12 a secondary pilot signal generator for generating a  
secondary pilot signal;

14 a secondary combiner for combining said modulated traffic  
channel data with said secondary pilot signal to generate a secondary  
combined signal; and

16 a secondary antenna system for transmitting said secondary  
18 combined signal in a second coverage area of a second cell site.